

COMPUTER AIDED ROBOTICS ENHANCED SURGERY – ROBOTICS

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Abstract

In order to efficiently and effectively research means to improve upon and advance the field of robotic surgery, a sufficient test-bed is required. Previously, such robots such as a small active arm and a stylus-type passive arm were used for research. In order to further robotic surgery development, an older, Microsoft DOS-only compatible, electric-servo light industrial robot (UMI RT100) will be implemented along with a new controller allowing a full range of motion and position retrieval using a non-DOS, newer, Microsoft Windows NT-based system such as Microsoft Windows XP, or 2000. The controller was designed in C++ using a command library coded in C++ by R.J. Smith. The library was revised until compatible with a newer compiler, and a C++ program for installing libraries to the robot, initializing the arm, and controlling the arm manually and numerically was coded. In the near future, the controller will be compartmentalized into several simple commands and meshed with a 3-D model of the arm scripted in MATLAB, resulting in a highly effective and user-friendly graphical interface. Hopefully, this revised arm will be more useful and allow for a broader range of testing during research.

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